IN THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the present application.

Listing of Claims

1. (Original) A method comprising:

receiving or taking a plurality of measurements of a plurality of near-neutral patches for different lightness levels printed by an imaging system using a first plurality of sets of color values of the imaging system's color space, derived based on a second plurality of sets of color values of a profile connection space (PCS) and in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches in the PCS; and

computing a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at the different lightness levels, by interpolation, based at least in part on said received or taken measurements.

2. (Original) The method of claim 1, wherein the method comprises taking the measurements in a manner that directly provides fourth color values of the printed near-neutral patches in the PCS.

3. (Original) The method of claim 1, wherein the method comprises taking the measurements in a manner that does not directly provide fourth color

values of the printed near-neutral patches in the PCS, and converting the measurements taken into the fourth color values in the PCS.

4. (Original) The method of claim 1, wherein the method comprises taking the measurements employing a selected one of a colorimeter and a spectrophotometer instead.

5. (Original) The method of claim 1, wherein the method is practiced on the imaging system, and further comprises printing the near-neutral patches using the first sets of color values.

6. (Original) The method of claim 1, wherein the method further comprises computing the first sets of color values based on the second sets of color values of the profile connection space (PCS) defining the near-neutral patches in the PCS, in accordance with the print table of the color profile of the imaging system.

7. (Original) The method of claim 1, wherein the method further comprises defining the near-neutral patches in the PCS.

8. (Original) The method of claim 1, wherein the method further comprises defining neutral aim in a device-independent color space.

9. (Original) The method of claim 1, wherein said computing of the third plurality of sets of color values by interpolation comprises performing a systematic area analysis at a lightness level of the PCS to determine an area of the measured near-neutral patch in the lightness level containing a neutral node of the lightness level, and computing a corresponding set of the third plurality of

sets of color values based at least in part on a weighted average of a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining the area in the lightness level containing the neutral node of the lightness level.

10. (Original) The method of claim 9, wherein each color component of each set of the fourth plurality of color values are weighted in accordance with an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node, a corresponding node and at least one other node defining the area in the lightness level containing the neutral node of the lightness level.

11. (Original) The method of claim 10, wherein the color profile of the imaging system is a RGB profile, and each color component is a selected one of a R, a G and a B color component.

12. (Original) The method of claim 9, wherein the method further comprises adjusting the corresponding set of the third plurality of sets of color values in view of a weighted average of measured lightness of the nodes defining the area containing the neutral node at the lightness level.

13. (Original) The method of claim 12, wherein the measured lightness of each node is weighted in accordance with an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node, the node and at least one other node.

14. (Original) The method of claim 12, wherein said adjustment comprises

linearly interpolating the corresponding set of the third plurality of sets of color values to a darker neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is greater than the lightness level, and linearly interpolating the corresponding set of the third plurality of sets of color values to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level.

15. (Original) The method of claim 12, wherein the method further comprises repeating said performance of systematic area analyses, said computing of a corresponding set of the third plurality of sets of color values, and said adjusting of the corresponding set for at least one other lightness level.

16. (Original) The method of claim 1, wherein the method further comprises adjusting the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.

17. (Original) The method of claim 1, wherein the PCS is CIE's L*a*b* color space.

18. (Original) An apparatus comprising:

storage medium having stored therein a plurality of programming instructions designed to enable the apparatus to

receive or take a plurality of measurements of a plurality of near-neutral patches for different lightness levels printed by an imaging system using a first plurality of sets of color values of the imaging system's color space, derived

based on a second plurality of sets of color values of a profile connection space (PCS), and in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches in the PCS, and

compute a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at different lightness levels, by interpolation, based at least in part on the received or taken measurements.

19. (Original) The apparatus of claim 18, wherein

the apparatus further comprises a selected one of a colorimeter and a spectrophotometer;

and the programming instructions are designed to enable the apparatus to take the measurements in a manner that directly provides fourth color values of the printed near-neutral patches in the PCS.

20. (Original) The apparatus of claim 18, wherein

the apparatus further comprises a selected one of a calorimeter and a spectrophotometer;

and the programming instructions are designed to enable the apparatus to take the measurements in a manner that does not directly provide fourth color values of the printed near-neutral patches in the PCS, and to convert the measurements taken into the fourth color values in the PCS.

21. (Original) The apparatus of claim 18, wherein the apparatus comprises the imaging system, and the programming instructions are further designed to enable the apparatus to print the near-neutral patches using the first sets of color values.

22. (Original) The apparatus of claim 18, wherein the programming instructions are further designed to enable the apparatus to compute the first sets of color values based on the second sets of color values of the profile connection space (PCS) defining the near-neutral patches in the PCS, in accordance with the print table of the color profile of the imaging system.

23. (Original) The apparatus of claim 18, wherein the programming instructions are further designed to enable the apparatus to compute the third plurality of sets of color values by interpolation by performing a systematic area analysis at a lightness level of the PCS to determine an area of the measured near-neutral patch in the lightness level containing a neutral node of the lightness level, and compute a corresponding set of the third plurality of sets of color values based at least in part on a weighted average of a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining the area in the lightness level containing the neutral node of the lightness level.

24. (Original) The apparatus of claim 23, wherein the programming instructions are further designed to enable the apparatus to weigh each color component of each set of the fourth plurality of color values in accordance with

an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node, a corresponding node and at least one other node defining the area in the lightness level containing the neutral node of the lightness level.

25. (Original) The apparatus of claim 24, wherein the color profile of the imaging system is a RGB profile, and each color component is a selected one of a R, a G and a B color component.

26. (Original) The apparatus of claim 24, wherein the programming instructions are further designed to enable the apparatus to adjust the corresponding set of the third plurality of sets of color values in view of a weighted average of measured lightness of the nodes defining the area containing the neutral node at the lightness level.

27. (Original) The apparatus of claim 26, wherein the programming instructions are further designed to enable the apparatus to weigh the measured lightness of each node in accordance with an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node, the node and at least one other node.

28. (Original) The apparatus of claim 26, wherein the programming instructions are further designed to enable the apparatus to perform said adjustment by linearly interpolating the corresponding set of the third plurality of sets of color values to a darker neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at

the lightness level is greater than the lightness level, and linearly interpolating the corresponding set of the third plurality of sets of color values to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level.

29. (Original) The apparatus of claim 26, wherein the programming instructions are further designed to enable the apparatus to repeat for at least one other lightness level, said performance of systematic area analyses, said computing of a corresponding set of the third plurality of sets of color values, and said adjusting of the corresponding set.

30. (Original) The apparatus of claim 18, wherein the programming instructions are further designed to enable the apparatus to adjust the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.

31. (Original) The apparatus of claim 18, wherein the PCS is CIE's L*a*b* color space.

32. (Original) An article of manufacture comprising:

a storage medium;

and a plurality of instructions stored in the storage medium, the instructions designed to enable an apparatus to

receive or take a plurality of measurements of a plurality of near-neutral patches for different lightness levels printed by an imaging system

using a first plurality of sets of color values of the imaging system's color space, derived based on a second plurality of sets of color values of a profile connection space (PCS) in accordance with a print table of a color profile of the imaging system mapping color value sets from the PCS to color value sets in the imaging system's color space, the second plurality of sets of color values defining the near-neutral patches in the PCS, and

compute a third plurality of sets of color values for the imaging system to output a corresponding plurality of neutral gray outputs at different lightness levels, by interpolation, based at least in part on the received or taken measurements.

33. (Original) The article of claim 32, wherein the programming instructions are designed to enable the apparatus to take the measurements.

34. (Original) The article of claim 32, wherein the programming instructions are designed to enable the apparatus to print the near-neutral patches using the first plurality of sets of color values.

35. (Original) The article of claim 32, wherein the programming instructions are further designed to enable the apparatus to compute the first sets of color values based on the second sets of color values of the profile connection space (PCS) defining the near-neutral patches in the PCS, in accordance with the print table of the color profile of the imaging system.

36. (Original) The article of claim 32, wherein the programming instructions are further designed to enable the apparatus to compute the third plurality of sets of color values by interpolation by performing a systematic area analysis at a lightness level of the PCS to determine an area of the measured near-neutral patch in the lightness level containing a neutral node of the lightness level, and compute a corresponding set of the third plurality of sets of color values based at least in part on a weighted average of a fourth plurality of sets of color values in the imaging system's color space corresponding to plurality of nodes in the PCS defining the area in the lightness level containing the neutral node of the lightness level.

37. (Original) The article of claim 32, wherein the programming instructions are further designed to enable the apparatus to adjust the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values.